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Some studies on Pasteurella species in sheep in Qena Governorate

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This study was carried out on 168 sheep in a private farm at Qena province. 128 out of them were apparently healthy, 22 clinically diseased suffering from respiratory affections and 18 were died at three weeks intervals. Bacteriological examination of the samples revealed that 42 samples were positive for bacterial isolation; 6 from apparently healthy animals, 20 from clinically diseased animals and 16 from dead ones. Bacterial isolates could be identified biochemically as *P. multocida* and *P. heamolytica*. Pathogenicity tests for *P. multocida* isolates indicated that the isolates were pathogenic to laboratory animals. *P. multocida* was isolated in high percentage (15%) in comparing with *P. haemolytica* (10%).

Pasteurella organisms are considered as normal inhabitant of upper respiratory tract of apparently healthy sheep and goats (Kadymov *et al*., 1987) which are capable of inducing severe respiratory infection (Devis *et al*.,1981) . The environmental stress factors play a role in lowering the animal resistance such as cold, humidity, shipping, transportation and over crowdeness which may lead to epizootic disease. *P. multocida* induces pneumonia as a secondary pathogen of other bacteria (Rimler and Rhoades, 1989). It also causes haemorrhagic septicaemia ; an acute infection of domestic animals (De Alwis, 1992). Respiratory affections constitute a common problem in sheep, particulary lambs causing losses and mortality.(Wilson *et al*., 1985; Radostits *et al*., 2002)

The aim of this work was directed to study the prevelance of *Pasteurella* spp as possible causes of respiratory affection and death in sheep and determine the pathogenicity of the isolated strains to mice.

Materials and Methods

Animals. The present study was carried out on 168 sheep aged from 6 - 36 months located at a private farm in Qena province. The animals were divided into three groups: apparently healthy animals (128 animal), clinically diseased animals suffering from respiratory disorders (22 animal) and animals that died within interval of three weeks (18 animal).

Samples. Nasal swabs were collected from live animals while tracheal swabs and lung tissues were only collected from the dead ones. The samples were taken under aseptic condition. Nasal and tracheal swabs were inoculated into nutrient broth and incubated at 37°C for 24 h. and then subcultured into 5% sheep blood agar and nutrient agar and incubated at 37°C for 24-48h. In case of lung samples, the surface of the lung tissues were sterilized with a hot spatula then the tissues was incisized with sterile scalpel and samples were taken and inoculated in the media. Pure colonies from each isolates were identified morphologically by their, shape, size, staining reaction, pigment production and arrangement and identified biochemically by carbohydrate fermentation tests using sugar media, motility tests, haemolysis on blood agar and growth on MacConkey agar according to (Cruickshank *et al*., 1975; Collins and Lyne, 1991).

Pathogenicity test of isolated *P. multocida* in mice. The bacterial suspension was made by plate washing technique (Stamp *et al*., 1955). Five white mice (20-22 gm. weight) were used. All mice were injected intraperitoneally by 0.1ml of bacterial suspension (1.5X 10^8 CFU/ml) except one mice injected with 0.1 ml sterile saline as a control. All injected mice were died within 24-48 h. while control ones still alive till the end of the test. Reisolation of inoculated strain from heart blood of dead mice was carried out (Cruickshank *et al*., 1975).

Results and Discussion

In this study *P. multocida* was isolated in high

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Table (1): Percentage of bacterial isolates from sheep.

Total sheep examined	Apparently healthy		Clinically diseased		Dead sheep	
	No .	**%**	**No .**	**%**	**No .**	**%**
168	128	76.19	22	13.1	18	10.71

Table (2): Incidence of *Pasteurella* isolates in examined sheep.

Examined samples	Total Positive samples		*P. multocida*		*P. haemolytica*	
	No .	**%**	**No .**	**%**	**No .**	**%**
168	42	25	25	14.88	17	10.12

Table (3): Incidence of *P.multocida* and *P.haemolytica* isolates from examined sheep.

Organisms	Apparently healthy		Clinically diseased		Dead sheep		Total	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
P. multocida	4	66.66%	17	85%	11	68.75%	32	76.19%
P. haemolytica	2	33.33%	3	15%	5	31.25%	10	23.81%
Total isolates	6		20		16		42	
Total samples	128		22		18		168	

percentage 25(14.88%) in comparing with *P. haemolytica* 17 (10.12%) (Table 2). This result agrees with that reported by Nakaya *et al.* (1998) who isolated *P. multocida* in high incidence than *P. haemolytica*. The clinical signs which were observed in this study were similar to those recorded by (Attia and Eassa, 1997; Hatem *et al*., 2003)**.** The animals were divided into three groups; apparently healthy animals (128), clinically diseased animals (22) and dead animals (18) (Table 1). Percentage of *P. multocida* and *P. haemolytica* isolation from apparently healthy, clinical diseased animals and dead ones were 6 (4.7%), 20 (91%) and 16 (89%) respectively, (Table 3). Ibrahim and Salim, (2003) revealed that isolated Pasteurella from clinically healthy, diseased and dead lambs with an incidence of 20%, 66.66%, and 78.26 % respectively. Also in table (3) the results revealed that isolation of *P. multocida* from 4 (3.1%) apparently healthy animals was, 17 (77%) from clinical diseased animals and 11 (61%) from dead ones while isolation of *P. haemolytica* were occurred in an incidence of 2 (1.7 %), 3 (13.6 %), 5 (27.7 %) respectively. These results agree with Elyas, (1993) who isolated *P. multocida* from 3% of clinical healthy lambs. It also, agrees with results recorded by Hatem *et al*. (2003) who isolated *P. multocida* and *P. haemolytica* from diseased sheep. The results in table (3) showed that the isolation of *P. multocida* and *P. haemolytica* from dead animals were 11 (61%), 5 (28%) respectively. These results agree with results recorded by Elyas, (1993) and Hatem *et al.* (2003). Mice inoculated with isolated strains of *P.multocida* died at intervals from 24 to 48 h whereas control mice remained alive throughout the experiment. The isolated strains of *P. multocida* showed high pathogenicity to mice producing acute septicemia and death. These results agree with that mentioned by Forster and Scheer, (1976) who reported that small doses of *P.multocida* were sufficient to kill a mouse. It also, agrees with results mentioned by Aliaa (2002).

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بعض ا لدراسات على ا لبا ستريلا فى الأغنام فى محافظه قنـــا

أجريت هذه الدراسة على ١٦٨ حاله من الأغنام في مزرعة خاصة ، ١٢٨ كانت فى حالة صحية جيدة ظاهريا ، ٢٢ كانت مريضة وتعانى من إصابات تنفسية ، ١٨ حالة نفقت على فترات متقطعة فى خلال ثلاث أسابيع . تم اخذ عينات من جميع الحيوانات للفحص اليكتريولوجى مسحات من الحيوانات الحيه والمريضه والميته , و قطع من انسجه ا لرئه من الحيوانات الميتة فقط وقد تم عزل ميكروب الباستريلا من(٤٢) حالة موزعه كالاتى :(٦) من الحالات الصحجه الظاهريه ,(٢٠) من الحالات المريضه ,(١٦) من الحالات النافقه وقد تم تصنيف الميكروب بيوكيميائيا الى باستريلا ملتوسيدا و باستريلا هيموليتكا . وقد اجريتتجربه لقياس شدة الضراوه فكانت الباستريلا ملتوسيدا شديدة الضراوه . وقد كانت نسبه عزل الباستريلا ملتوسيدا (١٥%) اعلى من نسبه عزل الباستريلا هيموليتكا (١٠%) .